STRATEGY RESEARCH PROJECT

THE MILITARY DECISION PROCESS --- OVERLOOKED BY THE REVOLUTION IN MILITARY AFFAIRS

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ABSTRACT

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All military operations are the result of decision-making. This paper examines the military decision-making process described in FM 101-5 and examines the future impact of the Revolution in Military Affairs on Army After Next decision-making. This is done in a systems context which addresses inputs, the process, and outputs. The situational awareness inputs and order production outputs are positively impacted. The decision process is little affected. Real innovation must include the decision process. This is difficult due to human limitations. Until real innovation is made, improvements to decision-making performance will be on the margins. Five recommendations for marginal improvement are:

1. Flatten the command structure.

2. Distribute decision-making.

3. Automate course of action analysis.

4. Utilize video-teleconferences to allow subordinate and supporting unit participation in the COA development, analysis, and selection.

5. Introduce all changes at the joint task force level.

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INTRODUCTION

The United States Army must move into the future and be prepared to win the wars of tomorrow. It must change or it will ultimately face defeat. There are examples throughout history where defeat is attributed to armies that failed to change. One way to look at this problem is to view it as a never ending staircase. As soon as one's foot is firmly planted on one stair, the other foot must be moving to the next step. If not, adversaries will move past. Although an army must change and move to the future, it is a bureaucratic organization that resists change. This is a paradox and serious challenge for senior army leadership. After wrestling with this challenge, today's senior army leadership is using the following approach:

> The Chief of Staff of the Army and Commander, Training and Doctrine Command established the Army After Next (AAN) project in February 1996 to help the Army leadership craft a vision of future Army requirements. The project connects the process of change represented by Army XXI and guides future Army research and development programs.--- By 2010, the Army will exploit the Force XXI effort to achieve nothing less than a technological and cultural metamorphosis. By then, over a decade of experimentation and field exercises will create a knowledge based force, Army XXI, balanced across our traditional imperatives and possessed with a clarity of observation, degree of decentralization, and pace of decision-making unparalleled in the history of warfare. AAN simply seeks to provide the Army of 2020 with physical speed and agility to complement the mental agility inherited from Force XXI.[1]

The above quotation leads us to believe that the AAN project is based upon technological and cultural change, especially in

the speed and knowledge aspects of decision-making. FM 101-5 states:

> Decision-making is knowing if to decide, then when and what to decide. It includes understanding the consequences of decisions. Decisions are the means by which the commander translates his vision of the end state into action.[2]

Nothing happens without a decision. The execution of a military operation is the result of decisions made by numerous command levels from the National Command Authorities (NCA) down to the squad level. Military decision-making is a primary candidate for change. As one reviews the AAN annual report for 1997, *Army Vision 2010*, *Joint Vision 2010* and various Revolution in Military Affairs (RMA) references, no mention can be found of changing the military decision process. The focus is on system inputs and outputs rather than the process. The documents address better information and situational awareness (SA) and improved information distribution. They deal with marginal changes to the decision system's inputs and outputs. The RMA is overlooking the military decision process.

The purpose of this research paper is to examine military decision-making and make recommendations for improvement. It reviews basic system theory, military decision-making, and the RMA. Then it analyzes the impact of the RMA on military decision-making and makes recommendations to improve military decision-making for the AAN.

THE MILITARY DECISION SYSTEM

The purpose of this section is to provide a review of basic systems theory and the military decision system. It is important to understand the systems approach to military decision-making. To that end, military decision-making as described in FM 101-5[3] and the Joint Task Force (JTF) Headquarters (HQ) Mission Training Guide (MTG)[4] is reviewed.

SYSTEMS THEORY

Systems theory is a theory of wholeness.[5] A system is defined as "an assemblage or combination of things or parts forming a complex or unitary whole."[6] Another definition is "a collection of entities...which act and interact together toward the accomplishment of some logical end."[7] Figure 1 illustrates a simple system consisting of inputs, a process, outputs, and feed back. The system consists of stimuli in the form of inputs, a

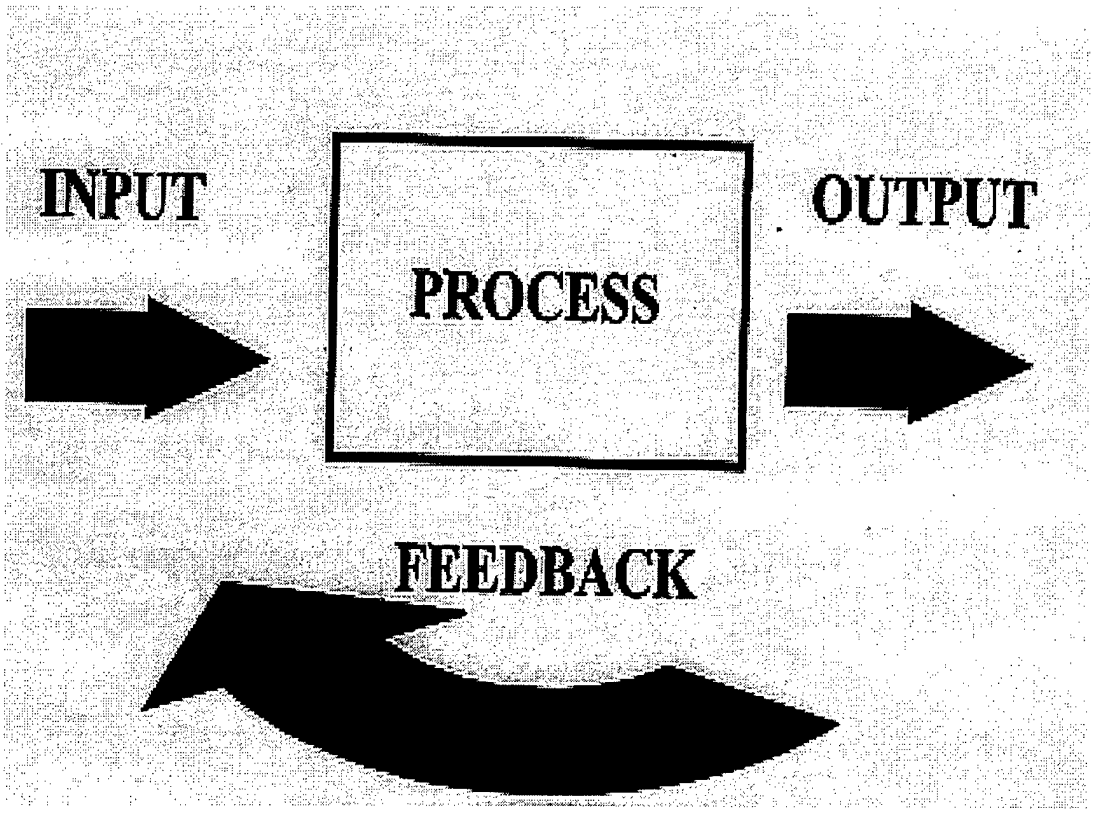

Figure 1: A Simple System

process that reacts to these inputs, and outputs provided by the process. The outputs provide additional inputs to the system in the form of feed back to the process.[8] A system that consists of many interacting simple systems is often described as a system of systems.

MILITARY DECISION SYSTEM

Military decision-making as described by FM 101-5 and the JTF HQ MTG is a system consisting of inputs, a process, and outputs. FM 101-5 calls the military decision system the military decision-making process (MDMP) (See Figure 2).[9] The MTG calls the military decision system the Joint Task Force Planning Process (See Figure 3).[10] The purpose of each system is to make the decisions necessary to defeat an adversary. The differences between them are semantic. For this reason I will use the Army MDMP as the basis to explain military decision-making.

As shown by Figure 2, the MDMP consists of seven steps.[11] The MDMP begins with the receipt (input) of a new mission from higher headquarters or the anticipation of a new mission based upon feedback. The commander and staff do a quick initial assessment of the mission which includes the initial allocation of available time. Generally, the commander allocates two-thirds

of the available time for subordinate units to conduct their MDMP, thus leaving one-third of the available time for the commander and his staff to do their planning. The commander provides initial planning guidance to the staff which issues

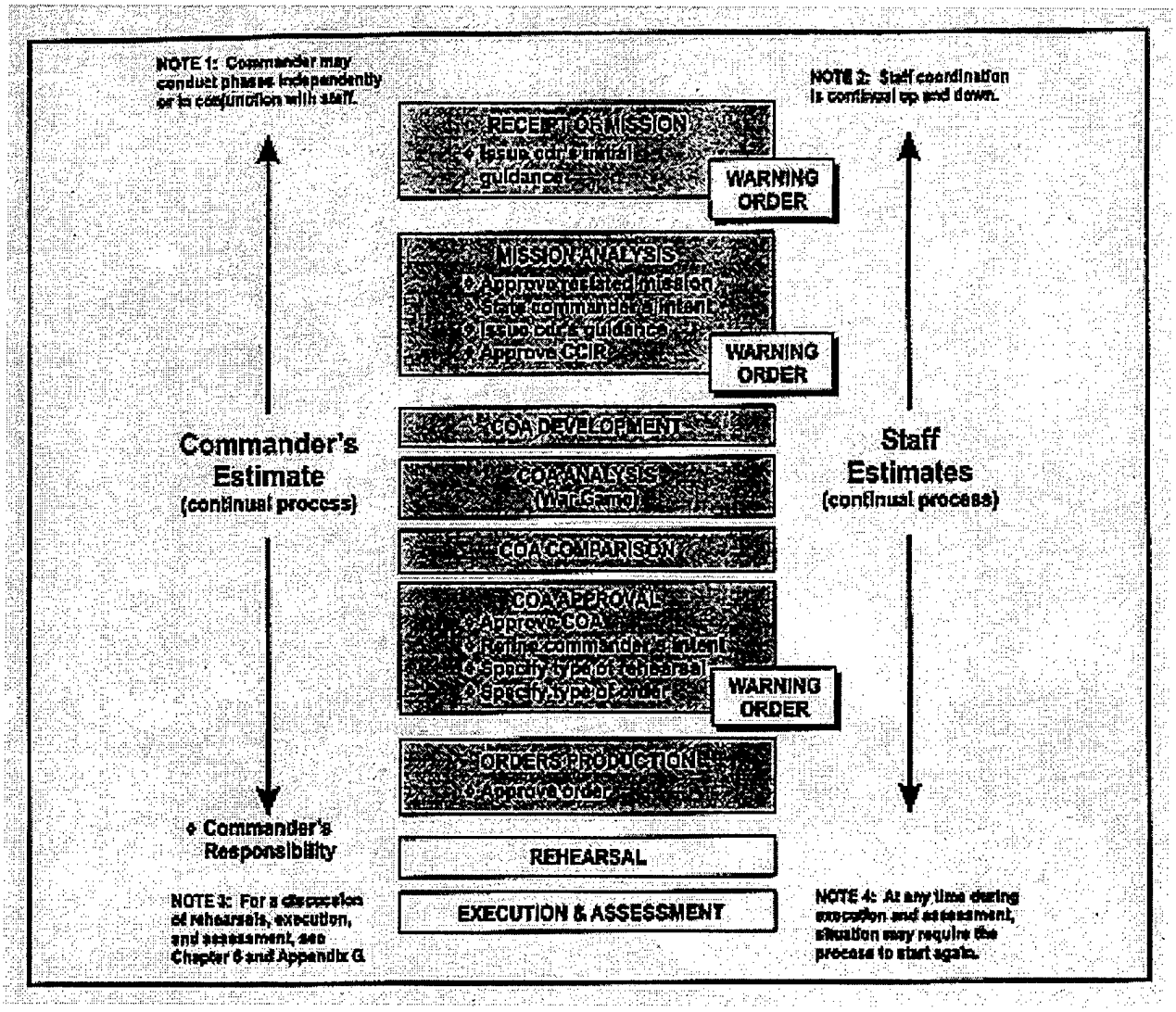

Figure 2: FM 101-5 Military Decision-Making Process

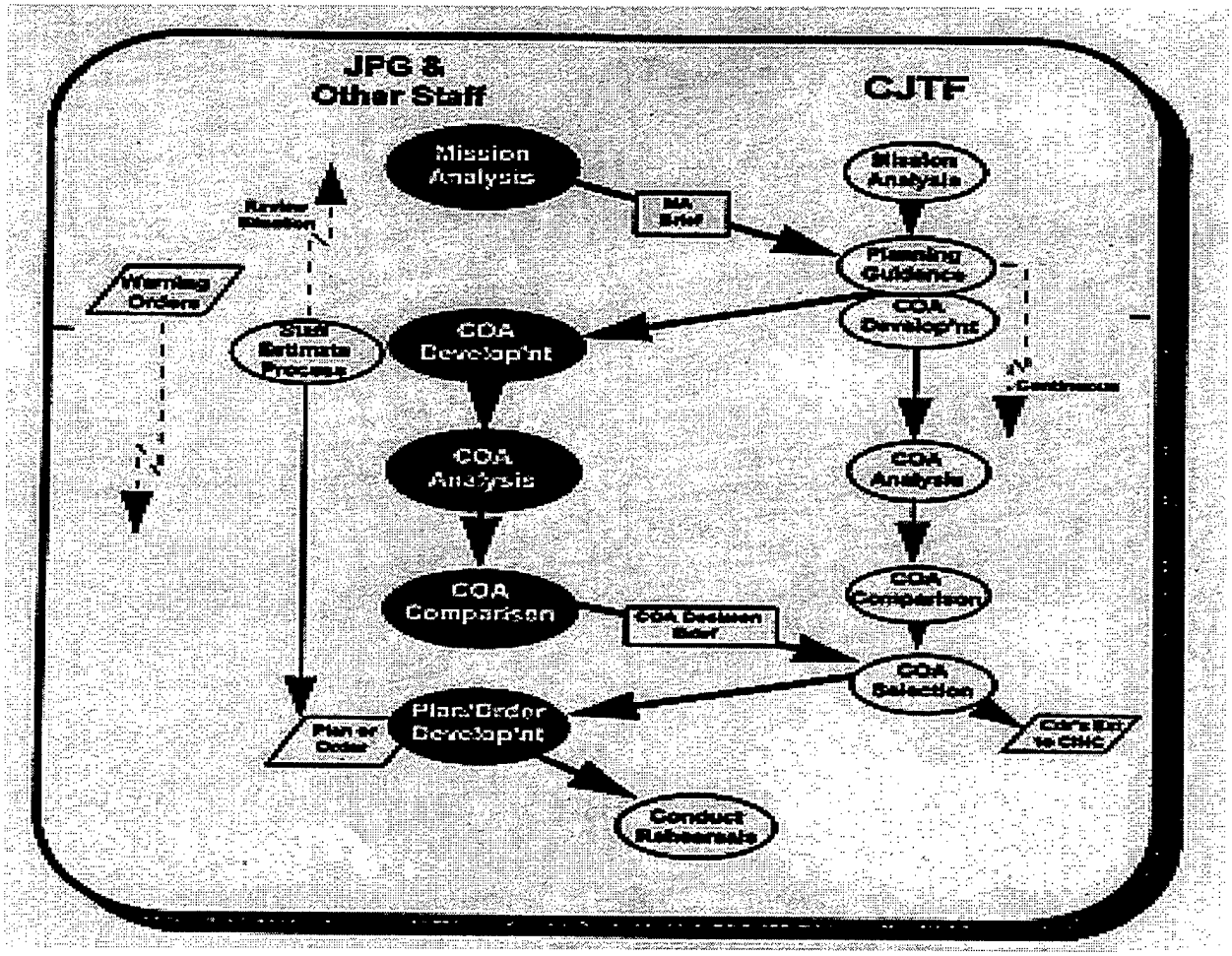

Figure 3: Joint Task Force Planning Process

warning orders for the commander to subordinate and supporting units. Information is shared with subordinate and supporting units to facilitate their planning.[12]

In Step 2 the mission analysis allows the commander to begin his battlefield visualization. The result is problem definition which begins the process of identifying feasible solutions. Inputs consist of feedback on intelligence information, tasks, constraints, facts, assumptions, and staff assessments of risk.

Outputs consist of the commander's critical information requirements (CCIRs), a restated mission, initial commander's intent, commander's guidance, and a warning order.[13]

In step 3 the staff develops courses of action (COAs) for analysis and comparison. They develop COA statements and sketches that describe COAs that are suitable, feasible, acceptable, distinguishable, and complete. The commander is briefed on the COAs. After this briefing he issues additional guidance for continuing the process.[14]

In Step 4 the staff analyzes the COAs by war-gaming each. The analysis helps the commander and his staff determine which COA best accomplishes the mission. The war game results allow the comparison of the COAs.[15]

In Step 5 the COAs are compared utilizing the results of step 4. COA comparison begins with the staff analyzing and evaluating the advantages and disadvantages of each COA. The staff then compares COAs to identify the one that offers the best chance for success. They make this comparison with regard to the most likely enemy COA and the most dangerous enemy COA. A decision matrix is often used to facilitate the comparison. The preferred COA is identified and the results of the comparison are briefed to the commander.[16]

In Step 6 the commander selects the COA he believes to be the best. If required the commander may refine his intent and CCIRs, and issue additional guidance. The staff issues a warning order

with essential information so subordinate and supporting units can refine their plans.[17]

In step 7 the staff develops the commander's decision into an order. Upon the commander's approval, the staff issues the order to subordinate and supporting units for execution.[18]

When we examine all seven steps in the context of a simple system we find that we have inputs, a process, and outputs. The primary inputs are data that contribute to situational awareness (SA). These include but are not limited to intelligence on the enemy and the status of friendly units. The input feeds the process which defines the mission, identifies different COAs, compares these COAs, and ultimately selects the best COA to form the basis of an order. The output is the order provided to subordinate and supporting units for execution. The next section examines the RMA's impact on the inputs, process, and outputs of the military decision system.

RMA IMPACT ON THE MILITARY DECISION SYSTEM

The American people after the great success in the Persian Gulf will no longer tolerate heavy U.S. casualties. The way to achieve a victory with low U.S. casualties is to deploy decisive force so quickly that the enemy is overcome by shock and awe. The ability to execute this form of warfare will be made possible by what defense thinkers call the RMA.[19] The RMA is the enabler for the AAN which is based on "speed and knowledge."[20] Generally,

the RMA is composed of three parts. The first is a system of systems which refers to a collective synergy achieved by melding technologies to establish battle space awareness, provide command and control, and apply force. The second part is information dominance. This means controlling bit-streams in the global information network.[21] The third part is information warfare which is defined as the capability to protect your information system while attacking the enemy's. The RMA impacts on the three parts of the military decision system - input, process, and output.

INPUT

A large part of the RMA is the development and integration of information technologies. The art of war has come a long way from the days of the Roman legions where commanders could see the entire battlefield with the naked eye, to commanders who viewed more dispersed formations with the aid of telescopes, and ultimately to the digitization of the battlefield.[22] The AAN requires unprecedented battlespace awareness.[23] The technologies being developed allow decision-makers to see the battlefield like no commanders before them. A combination of systems will be developed that allow:

> ...accurate wide-area scouting (unmanned Aerial and undersea vehicles, overhead sensors, Aegis radars, JSTARS aircraft, acoustic sensors); essentially instantaneous data fusion (global command and control system, C4I for the warrior, linked combat centers);

> and precision massed fires (precision guided munitions, long-range strike, enhanced effect weapons).[24]

There are many efforts ongoing to improve and expedite the SA inputs required for military decision-making.

Information technology innovation is not problem free. For instance, there is a problem associated with the generation of vast amounts of information. Information technology affects warfare like the waves spreading from a stone thrown into a pond. The waves are the strongest at the point of impact, with the further ripples barely noticeable, eventually losing their identity among the ripples reflected by the bank or originating from another source.[25] Which ripples/information are important? How are they sorted and processed? Technology can cause a new level of complexity with extraordinary requirements.[26] The cognitive capabilities and decision-making abilities of the human may be overwhelmed. "The dilemma of new technologies is that they push combat potential beyond decision-making abilities."[27] Even armed with sophisticated information aids, future leaders may find their decision-making capabilities quickly overwhelmed.[28] Additionally, no technology is so perfect that it can't be countered -- you cannot count on having perfect information.[29] As the RMA moves forward, advanced technologies that handle vast amounts of information are required. Information warfare (IW) capabilities that provide nearly perfect information must be developed.

PROCESS

The RMA has done nothing, however, to improve the military decision-making process. The process of mission identification and COA development, analysis, comparison, and selection is not addressed. To fully utilize future RMA information technologies, we need a different decision process. Limitations are imposed by our human training and experience to think in terms of two dimensional maps and symbols.[30] RMA forces us to think in terms of the more complex four dimensions. We must get past our rigid structure of decision-making which includes step-by-step, left to right, and top to bottom sequencing.[31] AAN research indicates that military decision-makers must operate in very compressed planning and operating cycles at very high tempos.[32] AAN war games suggest that in future wars situations will change quickly and dramatically, which suggests that commanders must make decisions at consistently faster rates.[33] The AAN solution is to cultivate experienced leaders, build cohesive units, and improve soldier training and education.[34] There is no mention within the AAN framework of improving or changing the military decision process.[35] Additionally, as previously discussed, the three parts of the RMA do not address the military decision process.[36]

OUTPUT

The output of the military decision system is an executable order. Technology has greatly aided in the publication and distribution of orders. In the past, orders took great amounts of time to deliver.[37] During the War of 1812, the battle of New Orleans took place after the official cessation of hostilities. The communications of the day were not rapid enough to carry the order to end the war. Today personal computers and computer networks allow orders to be published and distributed rapidly. Once approved, orders are distributed over computer networks at the maximum speed allowed by available band width and system hard/software. In the future distribution capability will only improve.[38]

The bottom line is that the RMA has had and will have an impact on the SA inputs of the military decision system. The AAN project recognizes this. Still the decision process has not changed and does not appear to be changing. Technological solutions have not been postulated, but technology has and will continue to improve the publishing and distribution of orders, thus improving the military decision system output.

IDEAS TO IMPROVE THE MILITARY DECISION SYSTEM

The AAN project and the RMA address only the military decision system inputs and outputs. The process of converting inputs to outputs has not been addressed. There is a reason for

this. Army officers are locked into a mindset that inhibits us from looking beyond the existing process. Our technology has changed but our process has not. Colonel John Mitchell of the British Army may have provided an explanation for this in 1839 when he wrote:

> Officers enter the Army at an age when they are more likely to take up existing opinions than to form their own. They grow up carrying into effect orders and regulations founded on those received opinions; they become, in some measure identified with existing views, until, in the course of years, the ideas thus gradually imbibed get too firmly rooted to be either shaken or eradicated by the force of argument or reflection. In no profession is the dread of innovation so great as in the army.[39]

We have only ourselves to blame for not changing the military decision process. It is deeply rooted in everything accomplished by the military. Nothing happens without using the decision process. Presently we cannot break from the mold of linear thinking. Technology will continue to improve the military decision system inputs and outputs. Until we gain some innovative insights to a new decision process, we will be constrained to continue working the margins for improving the current process. I propose five changes based upon my experience working at the Army division level and with combatant command level deliberate and crisis action planners. The five changes are: 1) flatten the command structure, 2) distribute decision-making, 3) automate COA analysis, 4) utilize video-teleconferences (VTCs), 5) introduce all changes at the JTF level.

FLATTEN THE COMMAND STRUCTURE

To increase the speed of decision-making, flatten the military command structure. If an army division receives a mission from a JTF, it uses MDMP to develop an order for its brigades. Brigades do the same to provide orders for their battalions. This process repeats at each command level. Although higher command levels attempt to facilitate parallel planning, the process largely is sequential. Each command level consumes time utilizing MDMP. A way to speed this process is to eliminate some command levels. If there are fewer command levels, there will be less time required for decision-making. That would result in quicker execution. For example, eliminate brigade headquarters and have the division direct battalions. Complete, accurate, and timely SA is expected to be one of the RMA information breakthroughs.[40] If the division commander has better SA, he should be able to expand his span of control. By eliminating brigade headquarters, division decisions could be transmitted directly to battalions. Thus valuable planning time is not consumed by brigades. I do not necessarily advocate deleting brigades. I only use them as an example to show how increased SA may allow us to flatten command structure. If SA can increase a commander's span of control, we have the potential for eliminating multiple command levels. Fewer command levels

equate to quicker execution due to less time used for decision-making.

DISTRIBUTE DECISION-MAKING

In the black powder days, drill turned soldiers into automatons. When machines reached the battlefield, more flexible and mobile organizations evolved which placed a premium on individual initiative but required detailed planning at every echelon.[41] In the information age we must leverage distributed decision-making. As mentioned previously, a commander stands a strong chance of be overwhelmed by the SA information that he receives. One way to overcome this is to distribute decision-making. A single decision-maker makes sequential decisions, one after the other. If he distributes decision-making over a larger number of skilled people, execution speed can be increased.[42] For this to occur all decision-makers must understand the commander's intent and they must act harmoniously.

AUTOMATE COA ANALYSIS

The U.S. Atlantic Command (USACOM) "in house" operations research systems analysis (ORSA) cell attempted to provide real time COA analysis to the CINC and JTF crisis action planners.[43] The ORSA cell was never completely successful in this regard. The tools available for conducting COA analysis (in this context analysis is synonymous with war-gaming) were not timely. Combat

models such as the Integrated Theater Engagement Model (ITEM) and the Tactical War simulation (TACWAR) were used. If the ORSA cell had an existing database, it could provide COA analysis within a matter of hours. Even so, the effort was after the fact; the cell just did not provide analytic results quick enough to matter. It provided some interesting "what if" insights but never really assisted decision-making. The real problem is that today's combat models just are not the right tools for real time COA analysis. Their database, lay down, and analysis requirements are time intensive.[44] We need to develop tools to automate the COA analysis (war-gaming) process. We need combat models with fast data base builds, fast lay downs, and fast data reduction processes that run much faster than real time.[45] Such tools would greatly assist the COA analysis process.

UTILIZE VTCS

The USACOM ORSA cell attempted to integrate two decision support tools into the USACOM Unified Endeavor JTF level training exercises.[46] These tools were the Joint Planning and Execution Toolkit (JPET) and the Common Operational Modeling, Planning, and Simulation Strategy (COMPASS). JPET is a suite of applications, designed for planners, that can shorten the decision timeline by making information available from a variety of sources and providing real-time coordination among planners at various locations.[47] The specific application that USACOM attempted to

use was the Theater Analysis Replaning and Graphical Execution Tool Kit (TARGET). It is a crisis planning aid that allows multiple users and different levels of command to share a common plan via distributed networks, complemented with collaborative tools, to rapidly develop COAs and executable orders.[48] COMPASS is a bundle of communications software to enhance collaborative planning and coordination.[49] Even with training and system support, the Unified Endeavor players reverted to business as usual. Old habits are hard to break, especially if new tools are not user friendly and they are introduced in an intense time sensitive situation.[50] The only tool used was the desktop VTC capability of COMPASS. "It became the primary method by which the liaison officers (LNOs) passed things (briefings, graphics, documents, etc.) back to components."[51]

The VTC concept should be taken one step farther. It should be taken into the JTF planning group during COA development, analysis, and comparison. The JTF service component planning staffs could participate throughout the decision process. This would let them develop their supporting plans or orders concurrently with the JTF's. This would give real meaning to parallel and collaborative planning. The ultimate result would be quicker execution.

INTRODUCTION AT THE JOINT LEVEL

Joint Pub 3-0 states that joint forces conduct campaigns and major operations while components of the joint force conduct subordinate and supporting operations, not independent campaigns.[52] General Shalikashvili, the former Chairman of the Joint Chiefs of Staff, said, "The nature of modern warfare demands that we fight as a joint team."[53] These statements dictate that future warfare will be fought jointly by the Armed Forces of the United States. For this reason any initiatives to improve the military decision system must be joint. We must get past allowing each service to develop their own initiatives in common areas such as decision-making. They need to improve their core capabilities with service related initiatives while integrating them with the appropriate joint systems. "The military, like any huge modern bureaucracy, resists innovation-especially if the change implies . . . transcend[ing] service rivalries."[54] We have to get past this, especially in an area such as military decision-making. Such initiatives must be implemented at a joint level of planning, preferably at the JTF level. They must be migrated up and down the various command levels. Although the foregoing analysis employed the Army decision-making system as the catalyst for examination, the conclusions have joint applicability.

CONCLUSIONS

The military decision system, which consists of inputs, a process and outputs, has not changed in many years. The AAN project and the RMA focus on decision-making system inputs and outputs. They address a much improved SA based upon technological improvements in informational areas. The output is still an order, but it can be published and distributed much more rapidly. The AAN project and the RMA do not address the decision-making process itself. I attribute this to our linear mind set. Changing the military decision process seems beyond our capability at this point in military evolution. For this reason we need to work on the margins to improve the military decision system. My five recommendations are:

1. Flatten the command structure.
2. Distribute decision-making.
3. Automate COA analysis.
4. Utilize video-teleconferences to allow subordinate and supporting unit participation in the COA development, analysis, and selection.
5. Introduce all changes at the JTF level.

These recommendations are not a complete solution for decision system innovation. They may improve the system but are still just incremental changes. Their implementation may help to stimulate innovative thinking that results in substantive change to the decision process itself. The future demands that we move

beyond the current day "logical" and linear decision system. I do not propose the ultimate solution. I know we need to find one, and offer these recommendations as a starting point.

ENDNOTES

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[2] U.S. Department of the Army, Staff Organization and Operations, Army Field Manual 101-5 (Washington, D.C.: U.S. Department of the Army, 31 May 1997), 5-1.

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[9] Field Manual 101-5, 5-1.

[10] Joint Task Force Headquarters Master Training Guide: Section II Plans & Orders (Draft Version 3.0), 5-II-2.

[11] Field Manual 101-5, 5-3.

[12] Ibid., 5-3 to 5-5.

[13] Ibid., 5-5.

[14] Ibid., 5-11 to 16.

[15] Ibid., 5-16 to 24.

[16] Ibid., 5-24 to 25.

[17] Ibid., 5-26.

[18] Ibid., 5-26 to 27.

[19] Russell Watson and John Barry, "Tomorrow's New Face of Battle." Newsweek Extra, Winter 1997-98, 66.

[20] Reimer, 23.

[21] The term "bit-streams" refers to the information that is transmitted and shared via the global information network.

[22] Martin van Creveld, Technology and War (New York: The Free Press, 1989), 115.

[23] Reimer, a-5.

[24] Stavridis, 9.

[25] Creveld, 2.

[26] Ibid., 237.

[27] James K. Morningstar, "Technologies, Doctrine, and Organization for RMA," Joint Force Quarterly 15 (Spring 97): 42.

[28] Reimer, 22.

[29] Creveld, 230.

[30] Antulio J. Echevarria, II, "Dynamic Inter-Dimensionality: A Revolution in Military Theory," Joint Force Quarterly 15 (Spring 97): 32.

[31] Ibid.

[32] Reimer, 20.

[33] Ibid., 22.

[34] Ibid., 22-23.

[35] Ibid.

[36] Stavridis, 9.

[37] Creveld, 114.

[38] James J. Schnieder, "Black Lights: Chaos, Complexity, and the Promise of Information Warfare," Joint Force Quarterly 15 (Spring 97): 24-26.

[39] Stephen Peter Rosen, Winning the Next War (Ithaca: Cornell University Press, 1991), 2.

[40] Harold Nelson, "Future Conflicts, Future Battlefields: A Global Perspective." In The Future Battlefield, ed. J. Mohan Malik (Deakin University Press, 1996), 20.

[41] Ibid.

[42] Morningstar, 43.

[43] The author of this paper was the Chief of the USACOM Analysis Branch.

[44] In combat modeling, lay down refers to the process of placing simulated units and combat systems into the battle space.

[45] The data reduction process is the process of reducing the data generated by a combat model into a format useful for statistical or graphical analysis.

[46] The Unified Endeavor exercises are used by USACOM to train three star level JTF commanders, their staff, and JTF components. USACOM has the mission to provide geographical CINCs with trained joint forces

[47] Systems Research and Applications Corporation, Joint Planning and Execution Toolkit User's Manual (Fairview Heights, Il: SRA, 1996), 1.

[48] Ibid.

[49] Bazemore, Barry, <bazemore@jtasc.acom.mil>, "Compass," electronic mail message to Thomas Littlefield <littleft@carlisle-emh5.army.mil>, 3 February 1998.

[50] Author's observation during Unified Endeavor exercises and tool training.

[51] Bazemore, Barry, <bazemore@jtasc.acom.mil>, "COMPASS INFO Requested," electronic mail message to Thomas Littlefield <littleft@carlisle-emh5.army.mil>, 18 November 1997.

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